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Ryerson

an Inland Steel company

Material Safety Data Sheet

ALUMINUM

I. PRODUCT IDENTIFICATION

Distributor: Joseph T. Ryerson & Son, Inc.

Emergency Telephone: (312) 762-2121

Address: 2621 W. 15th Place

Chicago, Illinois 60608

Chemical Name and Synonyms: ALUMINUM ALLOY

Chemical Family: Metals

Formula: Not Applicable

II. PRODUCT DESCRIPTION AND HAZARDOUS INGREDIENTS/IDENTITY INFORMATION:

See Chart Inside For Listing

III. PHYSICAL DATA

Melting Point F (C): Wide Range — 900-1200 (482-649)

Specific Gravity (H₂O = 1): Greater Than 3

Vapor Pressure: Not Applicable

% Volatile by Volume (%): Not Applicable

Vapor Density (Air = 1): Not Applicable

Evaporation Rate: Not Applicable

Solubility in Water: Negligible

Appearance and Odor: Grayish to silvery odorless sheet, strip, plate, bar, structural shapes, tubing and extrusions

IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point F (C): Not Applicable

Flammable Limits: Not Applicable

Extinguishing Media: Use methods applicable to surrounding area.

Unusual Fire and Explosion Hazards: None

Special Fire Fighting Procedures: Use self-contained breathing apparatus for protection against degradation products and fire fighting technique or agent(s) applicable to surrounding materials. Small chips, fine turnings, and dust may ignite readily. Use coarse water spray on chips, turnings, etc. Use class D extinguishing agents or dry sand on fines. Do *not* use halogenated extinguishing agents on small chips or fines. Dust clouds may be explosive. Molten aluminum may explode on contact with water.

DISCLAIMER

RYERSON MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The information contained in this Material Safety Data Sheet (MSDS) is believed to be correct, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications, hazards connected with the use of the material or the results to be obtained from the use thereof. User assumes all risk and liability of any use, processing or handling of any material. Variations in methods, conditions, equipment used to store, handle or process the material and hazards connected with the use of the material are solely the responsibility of the user and remain at its sole discretion.

As sold, the product described in this MSDS is considered by Ryerson to be an "article" within the meaning of Title 29 of the Code of Federal Regulations, Section 1910.1200 *et seq.* This MSDS is intended to be used solely for the purpose of satisfying informational requests made pursuant to that requirement. It is not intended to preempt, replace or expand the terms contained in Ryerson Conditions of Sale. Compliance with all applicable federal, state and local laws and regulations remains the responsibility of the user, and the user has the responsibility to provide a safe workplace, to examine all aspects of its operation, and to determine if or where precautions, in addition to those described herein, are required.

USEPA SF



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ALLOYING ELEMENTS													
CAS Number:	7429-90-5	7440-21-3	1309-37-1	7440-50-8	7439-96-5	7439-95-4	7440-47-3	1314-13-2	7440-32-6	7440-48-4	7439-92-1	7440-69-9	7440-62-2
Grade	Aluminum	Silicon	Iron	Copper	Manganese	Magnesium	Chromium	Zinc	Titanium	Cobalt	Lead	Bismuth	Vanadium
1100	>99.0	<1.0	<1.0	<0.3	<0.1			<0.1					
2011	>91.0	<0.4	<0.7	<6.0				<0.3			<0.6	<0.6	
2014		<1.2	<0.7	<5.0	<1.2	<0.8	<0.1	<0.3	<0.2				
2017		<0.8	<0.7	<4.5	<1.0	<0.8	<0.1	<0.3	<0.2				
2024		<0.5	<0.5	<4.9	<0.9	<1.8	<0.1	<0.3	<0.2				
2219		<0.2	<0.3	<6.8	<0.4	<0.1		<0.1	<0.1				<0.2
3003		<0.6	<0.7	<0.2	<1.5			<0.1					
3105		<0.6	<0.7	<0.3	<0.8	<0.8	<0.2	<0.4	<0.1				
5005		<0.3	<0.7	<0.2	<0.2	<1.1	<0.1	<0.3					
5052		<0.3	<0.4	<0.1	<0.1	<2.8	<0.4	<0.1					
5083		<0.4	<0.4	<0.1	<1.0	<4.9	<0.3	<0.3	<0.2				
5086		<0.4	<0.5	<0.1			<0.3	<0.3	<0.2				
5454		<0.3	<0.4	<0.1	<1.0	<5.0	<0.2	<0.3	<0.2				
5456		<0.3	<0.4	<0.1	<1.0	<5.5	<0.2	<0.3	<0.2				
6061		<0.8	<0.7	<0.4	<0.2	<1.2	<0.4	<0.3	<0.2				
6063		<0.6	<0.4	<0.1	<0.1	<0.9	<0.1	<0.1	<0.1				
6262	>94.0	<0.8	<0.7	<0.4	<0.2	<1.2	<0.2	<0.3	<0.2		<0.7	<0.7	
7075		<0.4	<0.5	<2.0	<0.3	<2.9	<0.3	<6.1	<0.2				

Contaminant and Exposure Limits	Aluminum	Bismuth	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Magnesium	Ozone	Silicon	Titanium	Vanadium	Zinc
(mg/m ³)	As Aluminum Dust	Not Listed	As Soluble Cr Salts	As Dust and Fume	As Copper Dust	As Iron Oxide Fume	As Inorganic Pb Dust & Fume	As Manganese Dust	As Magnesium Oxide Fume	As Gas (PPM)	As Nuisance Dust	As Ti, Titanium Dioxide	As Vanadium Pentoxide Dust	As Zinc Oxide Dust
PEL	10		0.5	0.1	1	10	0.05	5(c)	15	0.1	15	15	0.5(c)	-
TLV	20		0.5(VI)	0.1	1	-	0.15	5(c)	10	0.1	10	10	0.05 resp.	10
	As Aluminum Fume		As Metal and Insoluble Cr Salts		As Copper Fume	As Fe		As Manganese Fume					As Vanadium Pentoxide Fume	As Zinc Oxide Fume
	5		1		0.1	5		5(c)					0.1(c)	5

V. HEALTH HAZARD DATA

Applicable Statutory or Recommended Occupational Exposure Limits: No Threshold Limit Value (TLV) or Permissible Exposure Limit (PEL) exists for stainless steel. See chart inside for listing of the individual constituents.

Effects of Overexposure:

Acute - Dust or fume may cause irritation to the eyes, nose, or throat; leave a metallic taste in the mouth; result in metal fume fever; or produce flu-like symptoms.

Chronic - Aluminum: May initiate fibrotic changes to lung tissue

Chromium: Skin ulceration, irritative dermatitis, allergic reaction, ulceration of the mucous membranes, perforation of the nasal septum, bronchial carcinoma, adenocarcinoma, mutagen(?)
Listed NTPARC and IARC Monographs

Copper: No chronic debilitating symptoms indicated

Iron: Siderosis

Manganese: Bronchitis, pneumonitis, lack of coordination

Molybdenum: Morphological changes in the liver, kidneys, and spleen, anemia, diarrhea, bone deformity and growth retardation

Nickel: Inflammation of respiratory tract, pneumoconiosis. Skin sensitizer. Certain nickel compounds can cause cancer. Listed NTPARC and IARC Monographs

Phosphorus: Necrosis of the mandible

Sulfur (as sulfur dioxide): Edema of the lungs

Selenium: Nasal and bronchial irritation, gastro-intestinal disturbances, garlic odor of breath.

Titanium: No chronic debilitating symptoms indicated

Vanadium: Emphysema, pneumonia

Tungsten: Over exposure to tungsten dust can result in hard mental disease whose symptoms are cough dyspnea and wheezing.

Emergency and First Aid Procedures:

In the event of acute exposure, remove to fresh air, administer oxygen, and seek a physician's assistance.

VI. REACTIVITY DATA

Stability: Considered Stable

Incompatibility: Not incompatible with materials

Hazardous Polymerization: Not Applicable

Hazardous Decomposition Products: Not Applicable

Conditions to Avoid: May liberate metal fumes, metal oxides, or other oxides if exposed to elevated temperatures. Acid pickling of product may result in the formation of hexavalent chromium which is a hazardous waste and suspect carcinogen.

VII. SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled: Not Applicable

Waste Disposal Method: This material may be reclaimed for reuse.

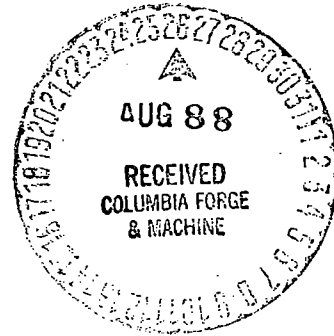
VIII. SPECIAL PROTECTION INFORMATION

If operations are such that atmospheric levels of contaminants exceed prescribed limits, provide local exhaust ventilation and/or adequate respiratory protection. Consult your regional codes or code of Federal Regulations, Title 29, Part 1910.252, Welding, Cutting and Brazing, 1910.134, Respiratory Protection, and 1910-Subpart Z, Toxic and Hazardous Substances.

IX. SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing: Not Applicable

Other Precautions: Plasma arc cutting or welding can generate ozone. Overexposure can result in mucous membrane irritation, as well as pulmonary changes including irritation, congestion and edema



Dear Valued Customer,

In order to comply with the Occupational Safety and Health Administration (OSHA) regulation 29 CFR Part 1910.1200 we are enclosing the Material Safety Data Sheet (MSDS) for carbon and low alloy steel bars and billets as supplied by Turret Steel Corp.

As a distributor of material produced by many steel producers, we have combined the information required on to one form.

The MSDS is intended to be used for employee health and safety education and is not intended for specification purposes.

The MSDS should be forwarded to the individual responsible for health and safety activities at your facility.

Yours very truly

TURRET STEEL CORP.

A handwritten signature in dark ink, appearing to read 'Stan Rakofsky'.

Stan Rakofsky
General Manager

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